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FORM PTO-1449 <u>INFORMATION DISCLOSURE STATEMENT</u>		ATTY. DOCKET NO. 0942.5040001	APPLICATION NO. 09/845,157
		APPLICANT Smith et al.	
		FILING DATE May 1, 2001	GROUP 1623

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
AA1		5,244,797	09/14/1993	Kotewicz et al.	435	194	03/18/1991
AB1		B1 5,244,797	08/25/1998	Kotewicz et al.	435	194	03/18/1991
AC1		5,405,776	04/11/1995	Kotewicz et al.	435	252.33	01/24/1992
AD1		B1 5,405,776	10/01/1996	Kotewicz et al.	435	194	01/24/1992
AE1		5,668,005	09/16/1997	Kotewicz et al.	435	194	03/12/1996
AF1		6,063,608	05/16/2000	Kotewicz et al.	435	194	02/10/1997
AG1		6,136,582	10/24/2000	Gao et al.	435	194	01/20/1998
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
AT1		WO 98/47912	10/29/1998	WIPO			Yes No
AJ1		WO 99/10366	03/04/1999	WIPO			Yes No
AK							Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)						
AL	1	Arion, D., et al., "The K65R Mutation Confers Increased DNA Polymerase Processivity to HIV-1 Reverse Transcriptase," <i>J. Biol. Chem.</i> 271:19860-19864, American Society for Biochemistry and Molecular Biology (1996)				
AM	1	Bakhanashvili, M., and Hizi, A., "The fidelity of the reverse transcriptases of human immunodeficiency viruses and murine leukemia virus, exhibited by the mispair extension frequencies, is sequence dependent and enzyme related," <i>FEBS</i> 319:201-205, Elsevier Science Publishers B.V. (1993)				
AN	1	Bakhanashvili, M., and Hizi, A., "A possible role for cysteine residues in the fidelity of DNA synthesis exhibited by the reverse transcriptases of human immunodeficiency viruses type 1 and type 2," <i>FEBS</i> 304:289-293, Elsevier Science Publishers B.V. (1992)				
AO	1	Bakhanashvili, M., et al., "Mutational studies of human immunodeficiency virus type 1 reverse transcriptase: the involvement of residues 183 and 184 in the fidelity of DNA synthesis," <i>FEBS Lett.</i> 391:257-262, Elsevier Science Publishers B.V. (1996)				
AP	1	Bakhanashvili, M., and Hizi, A., "Fidelity of the RNA-Dependent DNA Synthesis Exhibited by the Reverse Transcriptases of Human Immunodeficiency Virus Types 1 and 2 and of Murine Leukemia Virus: Mispair Extension Frequencies," <i>Biochem.</i> 31:9393-9398, American Chemical Society (1992)				

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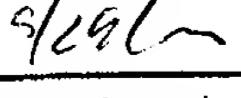
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AI						Yes No
AJ						Yes No
AK						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AL	2	Barnes, W.M., "The fidelity of Taq polymerase catalyzing PCR is improved by an N-terminal deletion," <i>Gene</i> 112:29-35, Elsevier Science Publishers B.V. (1992).
	AM	2	Basu, S., et al., "Sulphydryl groups in the template-primer-binding domain of murine leukemia virus reverse transcriptase," <i>Biochem. J.</i> 296:577-583, The Chemical Society, London (1993)
	AN	2	Bebenek, K., et al., "Reduced Frameshift Fidelity and Processivity of HIV-1 Reverse Transcriptase Mutants Containing Alanine Substitutions in Helix H of the Thumb Subdomain," <i>J. Biol. Chem.</i> 270:19516-19523, American Society for Biochemistry and Molecular Biology (1995)
	AO	2	Bebenek, K., et al., "The Fidelity of DNA Synthesis Catalyzed by Derivatives of <i>Escherichia coli</i> DNA Polymerase I," <i>J. Biol. Chem.</i> 265:13878-13887, The American Society for Biochemistry and Molecular Biology (1990)
	AP	2	Ben-Artzi, H., et al., "Characterization of the double stranded RNA dependent RNase activity associated with recombinant reverse transcriptases," <i>Nucleic Acids Res.</i> 20:5115-5118, Oxford University Press (1992)

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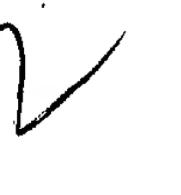
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OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
AL	3	Berger, S.L., et al., "Reverse Transcriptase and Its Associated Ribonuclease H: Interplay of Two Enzyme Activities Controls the Yield of Single-Stranded Complementary Deoxyribonucleic Acid," <i>Biochemistry</i> 22:2365-2372, The American Chemical Society (1983)					
AM	3	Blain, S.W., and Goff, S.P., "Effects on DNA Synthesis and Translocation Caused by Mutations in the RNase H Domain of Moloney Murine Leukemia Virus Reverse Transcriptase," <i>J. Virol.</i> 69:4440-4452, The American Society for Microbiology (1995)					
AN	3	Caliendo, A.M., et al., "Effects of Zidovudine-Selected Human Immunodeficiency Virus Type 1 Reverse Transcriptase Amino Acid Substitutions on Processive DNA Synthesis and Viral Replication," <i>J. Virol.</i> 70:2146-2153, The American Society for Microbiology (1996)					
AO	3	Carroll, S.S., et al., "A Mutant of DNA Polymerase I (Klenow Fragment) with Reduced Fidelity," <i>Biochem.</i> 30:804-813, American Chemical Society (1991)					
AP	3	Carter, P. and Wells, J.A., "Engineering Enzyme Specificity by 'Substrate-Assisted Catalysis,'" <i>Science</i> 237:394-399, American Association for the Advancement of Science (1987)					
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AJ						Yes	No
AK						Yes	No
OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
<i>AL</i>	AL	4	Chen, Y., and Marion, P.L., "Amino Acids Essential for RNase H Activity of Hepadnaviruses Are Also Required for Efficient Elongation of Minus-Strand Viral DNA," <i>J. Virol.</i> 70:6151-6156, The American Society for Microbiology (1996)				
	AM	4	Chowdhury, K., et al., "Elucidation of the Role of Arg 110 of Murine Leukemia Virus Reverse Transcriptase in the Catalytic Mechanism: Biochemical Characterization of Its Mutant Enzymes," <i>Biochemistry</i> 35:16610-16620, American Chemical Society (1996)				
	AN	4	Creighton, S., et al., "Base Mispair Extension Kinetics," <i>J. Biol. Chem.</i> 267:2633-2639, American Society for Biochemistry and Molecular Biology (1992)				
<i>AO</i>	AO	4	DeStefano, J.J., et al., "Parameters that influence processive synthesis and site-specific termination by human immunodeficiency virus reverse transcriptase on RNA and DNA templates," <i>Biochimica et Biophysica Acta</i> 1131:270-280, Elsevier Science Publishers B.V. (1992)				
<i>AP</i>	AP	4	Diaz, L., and DeStefano, J.J., "Strand transfer is enhanced by mismatched nucleotide at the 3' primer terminus: a possible link between HIV reverse transcriptase fidelity and recombination," <i>Nucleic Acids Res.</i> 24:3086-3092, Oxford University Press (1996)				
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AI						Yes No			
AJ						Yes No			
AK						Yes No			
OTHER (Including Author, Title, Date, Pertinent Pages, etc.)									
	AL	5	Drosopoulos, W.C., and Prasad, V.R., "Increased Polymerase Fidelity of E89G, a Nucleoside Analog-Resistant Variant of Human Immunodeficiency Virus Type 1 Reverse Transcriptase," <i>J. Virol.</i> 70:4834-4838, The American Society for Microbiology (1996)						
		AM	5	Drosopoulos, W.C., and Prasad, V.R., "Increased Misincorporation Fidelity Observed for Nucleoside Analog Resistance Mutations M184V and E89G in Human Immunodeficiency Virus Type 1 Reverse Transcriptase Does Not Correlate with the Overall Error Rate Measured In Vitro," <i>J. Virol.</i> 72:4224-4230, The American Society for Microbiology (1998)					
			AN	5	Eckert, K.A., and Kunkel, T.A., "Fidelity of DNA synthesis catalyzed by human DNA polymerase α and HIV-1 reverse transcriptase: effect of reaction pH," <i>Nucleic Acids Res.</i> 21:5212-5220, Oxford University Press (1993)				
				AO	5	Eger, B.T., et al., "Mechanism of DNA Replication Fidelity for Three Mutants of DNA Polymerase I: Klenow fragment KF(exo+), KF(polA5), and KF(exo-)," <i>Biochem.</i> 30:1441-1448, American Chemical Society (1991)			
					AP	5	Feng, J.Y., and Anderson, K.S., "Mechanistic Studies Examining the Efficiency and Fidelity of DNA Synthesis by the 3TC-Resistant Mutant (184V) of HIV-1 Reverse Transcriptase," <i>Biochemistry</i> 38:9440-9448, The American Chemical Society (July 1999); Published on the Web on June 30, 1999.		
EXAMINER					DATE CONSIDERED <i>03/24/01</i>				
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AA						AN 2001		
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AI						Yes No		
AJ						Yes No		
AK						Yes No		
OTHER (Including Author, Title, Date, Pertinent Pages, etc.)								
AL	6	Finston, W.I. and Champoux, J.J., "RNA-Primed Initiation of Moloney Murine Leukemia Virus Plus Strands by Reverse Transcriptase In Vitro," <i>J. Virology</i> 51:26-33, American Society for Microbiology (1984)						
AM	6	Gao, G., and Goff, S.P., "Replication Defect of Moloney Murine Leukemia Virus with a Mutant Reverse Transcriptase That Can Incorporate Ribonucleotides and Deoxyribonucleotides," <i>J. Viro.</i> 72:5905-5911, The American Society for Microbiology (1998)						
AN	6	Gerard, G.F., et al., "cDNA Synthesis by Cloned Moloney Murine Leukemia Virus Reverse Transcriptase Lacking RNase H Activity," <i>Focus</i> 11:66-69, Life Technologies, Inc. (1989)						
AO	6	Gerard, G.F., et al., "Influence on Stability in <i>Escherichia coli</i> of the Carboxy-Terminal Structure of Cloned Moloney Murine Leukemia Virus Reverse Transcriptase," <i>DNA</i> 5:271-279, Mary Ann Liebert, Inc. (1986)						
AP	6	Gerard, G., et al., "cDNA Synthesis by Moloney Murine Leukemia Virus RNase H-Minus Reverse Transcriptase Possessing Full DNA Polymerase Activity," <i>Focus</i> 14:91-93, Life Technologies, Inc. (1992)						
EXAMINER				DATE CONSIDERED 9/29/02				
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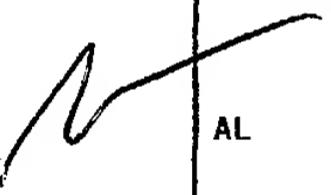
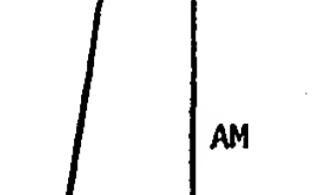
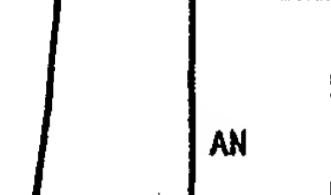
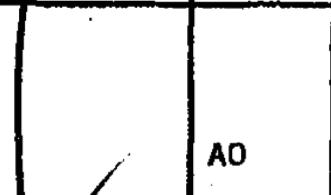
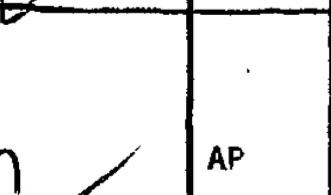
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AI							Yes No
AJ							Yes No
AK							Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AL	7	Gerwin, B.I., et al., "Mutant of B-Tropic Murine Leukemia Virus Synthesizing an Altered Polymerase Molecule," <i>J. Virology</i> 31:741-751, The American Society for Microbiology (1979)
	AM	7	Goff, S.P., "Retroviral Reverse Transcriptase: Synthesis, Structure, and Function," <i>J. Acquired Immune Deficiency Syndrome</i> 3:817-831, Raven Press (1990)
	AN	7	Goff, S.P. and Lobel, L.I., "Mutants of murine leukemia viruses and retroviral replication," <i>Biochimica et Biophysica Acta</i> , 907:93-123, Elsevier Science Publishers B.V. (1987)
	AO	7	Goobar-Larsson, L., et al., "Disruption of a Salt Bridge between Asp 488 and Lys 465 in HIV-1 Reverse Transcriptase Alters Its Proteolytic Processing and Polymerase Activity," <i>Virology</i> 196:731-738, Academic Press (1993)
	AP	7	Götte, M., et al., "The M184V Mutation in the Reverse Transcriptase of Human Immunodeficiency Virus Type 1 Impairs Rescue of Chain-Terminated DNA Synthesis," <i>J. Virology</i> 74:3579-3585, The American Society for Microbiology (April 2000)

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OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
	AL	8		Guo, J., et al., "Defects in Primer-Template Binding, Processive DNA Synthesis, and RNase H Activity Associated with Chimeric Reverse Transcriptases Having the Murine Leukemia Virus Polymerase Domain Joined to Escherichia coli RNase H," <i>Biochemistry</i> 34:5018-5029, The American Chemical Society (1995)			
	AM	8		Hamburg, M.E., et al., "The influence of 3TC-resistance mutations E89G and M184V in the human immunodeficiency virus reverse transcriptase on mispair extension efficiency," <i>Nucleic Acids Res.</i> 26:4389-4394, Oxford University Press (1998)			
	AN	8		Hite, J.M., et al., "Factors affecting fidelity of DNA synthesis during PCR amplification of d(C-A) _n ·d(G-T) _n microsatellite repeats," <i>Nucleic Acids Res.</i> 24:2429-2434, Oxford University Press (1996)			
	AO	8		Hsu, M., et al., "Higher fidelity of RNA-dependent DNA mispair extension by M184V drug-resistant than wild-type reverse transcriptase of human immunodeficiency virus type 1," <i>Nucleic Acids Research</i> 25:4532-4536, Oxford University Press (1997)			
	AP	8		Jin, J., et al., "Analysis of the Role of Glutamine 190 in the Catalytic Mechanism of Murine Leukemia Virus Reverse Transcriptase," <i>J. Biol. Chem.</i> 274:20861-20868, American Society for Biochemistry and Molecular Biology (July 1999)			
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<i>2</i>	AL	9	Kaushik, N., et al., "Role of Glutamine-151 of Human Immunodeficiency Virus Type-1 Reverse Transcriptase in RNA-Directed DNA Synthesis," <i>Biochemistry</i> 36:14430-14438, The American Chemical Society (1997)
<i>2</i>	AM	9	Kaushik, N., et al., "Role of Glutamine 151 of Human Immunodeficiency Virus Type-1 Reverse Transcriptase in Substrate Selection As Assessed by Site-Directed Mutagenesis," <i>Biochemistry</i> 39:2912-2920, The American Chemical Society (March 2000); Published on the web on February 22, 2000.
<i>2</i>	AN	9	Kaushik, N., et al., "Tyrosine 222, a Member of the YXDD Motif of MuLV RT, Is Catalytically Essential and Is a Major Component of the Fidelity Center," <i>Biochemistry</i> 38:2617-2627, The American Chemical Society (March 1999); Published on the web on February 10, 1999.
<i>2</i>	AO	9	Kerr, S.G., and Anderson, K.S., "RNA Dependent DNA Replication Fidelity of HIV-1 Reverse Transcriptase: Evidence of Discrimination between DNA and RNA Substrates," <i>Biochemistry</i> 36:14056-14063, The American Chemical Society (1997)
<i>2</i>	AP	9	Kim, B., et al., "Fidelity of Mutant HIV-1 Reverse Transcriptases: Interaction with the Single-Stranded Template Influences the Accuracy of DNA Synthesis," <i>Biochemistry</i> 37:5831-5839, The American Chemical Society (1998); Published on the web on April 9, 1998.

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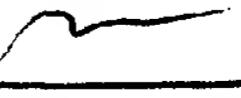
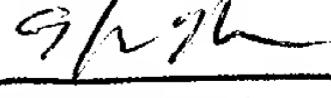
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AJ							Yes No
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	AL	10	Kim, B., et al., "New Human Immunodeficiency Virus, Type 1 Reverse Transcriptase (HIV-1 RT) Mutants with Increased Fidelity of DNA Synthesis," <i>J. Biol. Chem.</i> 274:27666-27673, American Society for Biochemistry and Molecular Biology (September 1999)
	AM	10	Levin, J.G., et al., "Murine Leukemia Virus Mutant With a Frameshift in the Reverse Transcriptase Coding Region: Implications for pol Gene Structure," <i>J. Virology</i> 51:470-478, American Society for Microbiology (1984)
	AN	10	Lewis, D.A., et al., "Uniquely Altered DNA Replication Fidelity Conferred by an Amino Acid Change in the Nucleotide Binding Pocket of Human Immunodeficiency Virus Type I Reverse Transcriptase," <i>J. Biol. Chem.</i> 274:32924-32930, The American Society for Biochemistry and Molecular Biology (November 1999)
	AO	10	Martin-Hernandez, A.M., et al., "Human immunodeficiency virus type 1 reverse transcriptase: role of Tyr115 in deoxynucleotide binding and misinsertion fidelity of DNA synthesis," <i>EMBO J.</i> 15:4434-4442, Oxford University Press (1996)
	AP	10	Martin-Hernandez, A.M., et al., "Mispair extension fidelity of human immunodeficiency virus type 1 reverse transcriptases with amino acid substitutions affecting Tyr115," <i>Nucleic Acids Res.</i> 25:1383-1389, Oxford University Press (1997)

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		APPLICANT Smith et al.		
		FILING DATE May 1, 2001	GROUP 1623	

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AI						Yes No
	AJ						Yes No
	AK						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

<i>z</i>	AL	11	Messer, L.I., et al., "Functional Analysis of Reverse Transcription by a Frameshift pol Mutant of Murine Leukemia Virus," <i>Virology</i> 146:146-152, Academic Press, Inc. (1985)
<i>/</i>	AM	11	Oude Essink, B.B., et al., "Increased polymerase fidelity of the 3TC-resistant variants of HIV-1 reverse transcriptase," <i>Nucleic Acids Res.</i> 25:3212-3217, Oxford University Press (1997)
<i>/</i>	AN	11	Pandey, V.N., et al., "Role of Methionine 184 of Human Immunodeficiency Virus Type-1 Reverse Transcriptase in the Polymerase Function and Fidelity of DNA Synthesis," <i>Biochemistry</i> 35:2168-2179, The American Chemical Society (1996)
<i>/</i>	AO	11	Patel, P.H., et al., "Insights into DNA Polymerization Mechanisms from Structure and Function Analysis of HIV-1 Reverse Transcriptase," <i>Biochemistry</i> 34:5351-5363, The American Chemical Society (1995)
<i>/</i>	AP	11	Perrino, F.W., et al., "Extension of mismatched 3' termini of DNA is a major determinant of the infidelity of human immunodeficiency virus type 1 reverse transcriptase," <i>Proc. Natl. Acad. Sci. USA</i> 86:8343-8347, The National Academy of Sciences of the USA (1989)

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			APPLICANT Smith et al.				
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
AI							Yes No
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AK							Yes No
OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
	AL	12	Pop, M.P., and Biebricher, C.K., "Kinetic Analysis of Pausing and Fidelity of Human Immunodeficiency Virus Type 1 Reverse Transcription," <i>Biochemistry</i> 35:5054-5062, The American Chemical Society (1996)				
	AM	12	Prasad, V.R. and Goff, S.P., "Linker insertion mutagenesis of the human immunodeficiency virus reverse transcriptase expressed in bacteria: Definition of the minimal polymerase domain," <i>Proc. Natl. Acad. Sci. USA</i> 86:3104-3108, The National Academy of Sciences of the USA (1989)				
	AN	12	Quan, Y., et al., "Dominance of the E89G Substitution in HIV-1 Reverse Transcriptase in Regard to Increased Polymerase Processivity and Patterns of Pausing," <i>J. Biol. Chem.</i> 273:21918-21925, American Society for Biochemistry and Molecular Biology (1998)				
	AO	12	Repaske, R., et al., "Inhibition of RNase H Activity and Viral Replication by Single Mutations in the 3' Region of Moloney Murine Leukemia Virus Reverse Transcriptase," <i>J. Virology</i> 63:1460-1464, American Society for Microbiology (1989)				
	AP	12	Resnick, R., et al., "Involvement of Retrovirus Reverse Transcriptase-Associated RNase H in the Initiation of Strong-Stop (+) DNA Synthesis and the Generation of the Long Terminal Repeat," <i>J. Virology</i> 51:813-821, American Society for Microbiology (1984)				
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U.S. PATENT DOCUMENTS						
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AI							Yes No
AJ							Yes No
AK							Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
<i>✓</i>	AL	<u>13</u>	Rezende, L.F., et al., "The Impact of Multidideoxynucleoside Resistance-Conferred Mutations in Human Immunodeficiency Virus Type 1 Reverse Transcriptase on Polymerase Fidelity and Error Specificity," <i>J. Virol.</i> 72:2890-2895, The American Society for Microbiology (1998)				
<i>✓</i>	AM	<u>13</u>	Rezende, L.F., et al., "The influence of 3TC resistance mutation M184I on the fidelity and error specificity of human immunodeficiency virus type 1 reverse transcriptase," <i>Nucleic Acids Res.</i> 26:3066-3072, Oxford University Press (1998)				
<i>✓</i>	AN	<u>13</u>	Rubinek, T., et al., "The fidelity of 3' misinsertion and mispair extension during DNA synthesis exhibited by two drug-resistant mutants of the reverse transcriptase of human immunodeficiency virus type 1 with Leu74→Val and Glu89→Gly," <i>Eur. J. Biochem.</i> 247:238-247, FEBS (1997)				
<i>✓</i>	AO	<u>13</u>	Schwartzberg, P., et al., "Construction and Analysis of Deletion Mutations in the <i>pol</i> Gene of Moloney Murine Leukemia Virus: A New Viral Function Required for Productive Infection," <i>Cell</i> 37:1043-1052, MIT Press (1984)				
<i>✓</i>	AP	<u>13</u>	Sooknanan, R., et al., "Fidelity of Nucleic Acid Amplification with Avian Myeloblastosis Virus Reverse Transcriptase and T7 RNA Polymerase," <i>BioTechniques</i> 17:1077-1080, 1083-1085, Eaton Publishing Co (1994)				

EXAMINER	<i>✓</i>	DATE CONSIDERED	<i>7/24/03</i>
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	AE						Yes No
	AJ						Yes No
	AK						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

1	AL	14	Suzuki, M., et al., "Low Fidelity Mutants in the α -Helix of <i>Thermus aquaticus</i> DNA Polymerase I," <i>J. Biol. Chem.</i> 272:11228-11235, The American Society for Biochemistry and Molecular Biology, Inc. (1997)
1	AM	14	Suzuki, M., et al., "Fidelity Mutants in <i>Thermus aquaticus</i> DNA Polymerase I," Ninth International Genome Sequencing and Analysis Conference, Hilton Head Island, South Carolina, September 13-16, 1997. <i>Microbial and Comparative Genomics</i> 2:226, Abstract C-30, Mary Ann Liebert, Inc. (1997)
1	AN	14	Taube, R., et al., "The fidelity of misinsertion and mispair extension throughout DNA synthesis exhibited by mutants of the reverse transcriptase of human immunodeficiency virus type 2 resistant to nucleoside analogs," <i>Eur. J. Biochem.</i> 250:106-114, FEBS (1997)
1	AO	14	Teleshitsky, A. and Goff, S.P., "RNase H domain mutations affect the interaction between Moloney murine leukemia virus reverse transcriptase and its primer-template," <i>Proc. Natl. Acad. Sci. USA</i> 90:1276-1280, The National Academy of Sciences of the USA (1993)
1	AP	14	Varela-Echavarria, A., et al., "Comparison of Moloney Murine Leukemia Virus Mutation Rate with the Fidelity of Its Reverse Transcriptase <i>In Vitro</i> ," <i>J. Biol. Chem.</i> 267:24681-24688, American Society for Biochemistry and Molecular Biology (1992)

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	AI						Yes No
	AJ						Yes No
	AK						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
<i>✓</i>	AL	15	Wainberg, M.A., et al., "Enhanced Fidelity of 3TC-Selected Mutant HIV-1 Reverse Transcriptase," Science 271:1282-1285, American Association for the Advancement of Science (1996)				
<i>✓</i>	AM	15	Co-Pending U.S. Patent Application No. 09/677,574, filed October 3, 2000.				
<i>✓</i>	AN	15	Co-Pending U.S. Patent Application No. 09/808,124, filed March 15, 2001.				
<i>✓</i>	AO	15	Co-Pending U.S. Patent Application No. 09/902,741, filed July 12, 2001.				
	AP						
EXAMINER <i>[Signature]</i>					DATE CONSIDERED <i>7/29/01</i>		

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AL							Yes No
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OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
<i>l</i>	AR	1	Arnold, F.H., et al., "How enzymes adapt: lessons from directed evolution," TRENDS Biochem. Sci. 26:100-106, Elsevier Science Ltd. (February 2001)				
<i>l</i>	AS	1	Bailey, J.M., "Interpretation of Nitrocellulose Filter Assays of Protein-Nucleic Acid Binding," Anal. Biochem. 93:204-206, Academic Press, Inc. (1979)				
<i>l</i>	AT	1	Beard, W.A., et al., "Vertical-scanning Mutagenesis of a Critical Tryptophan in the Minor Groove Binding Track of HIV-1 Reverse Transcriptase. Molecular Nature of Polymerase-Nucleic Acid Interaction," J. Biol. Chem. 273:30435-30442, The American Society for Biochemistry and Molecular Biology, Inc. (1998)				
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FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT		APPLICANT Smith et al.	
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AL							Yes No
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AO							Yes No
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OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

✓	AR	2	Bebenek, K., and Kunkel, T.A., "5. The Fidelity of Retroviral Reverse Transcriptases," in <i>Reverse Transcriptase</i> , Skalka, A.M. and Goff, S.P., eds., Cold Spring Harbor Laboratory Press, Plainview, New York, pp. 85-102 (1993)
✓	AS	2	Bebenek, K., et al., "A minor groove binding track in reverse transcriptase," <i>Nat. Struct. Biol.</i> 4:194-197, Nature Publishing Co. (1997)
✓	AT	2	Cadwell, R.C., and Joyce, G.F., "Randomization of Genes by PCR Mutagenesis," <i>PCR Meth. Appl.</i> 2:28-33, Cold Spring Harbor Laboratory Press (1992)

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FORM PTO-1449		ATTY. DOCKET NO. 0942.5040001/RWE/MTT	TECHNICAL FIELD NO. 09/8 CENTER 1000/2900
FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT		APPLICANT Smith et al.	
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OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
<i>N</i>	AR	<u>1</u> <u>3</u>	Cambillau, C., and Claverie, J.-M., "Structural and Genomic Correlates of Hyperthermostability," <i>J. Biol. Chem.</i> 275:32383-32386, The American Society for Biochemistry and Molecular Biology, Inc. (October 2000)				
<i>L</i>	AS	<u>1</u> <u>3</u>	D'Alessio, J.M., and Gerard, G.F., "Second-strand cDNA synthesis with <i>E. coli</i> DNA polymerase I and RNase H: the fate of information at the mRNA 5' terminus and the effect of <i>E. coli</i> DNA ligase," <i>Nucl. Acids Res.</i> 16:1999-2014, IRL Press Ltd. (1988)				
<i>N</i>	AT	<u>1</u> <u>3</u>	DeStefano, J.J., et al., "Polymerization and RNase H Activities of the Reverse Transcriptases from Avian Myeloblastosis, Human Immunodeficiency, and Moloney Murine Leukemia Viruses Are Functionally Uncoupled," <i>J. Biol. Chem.</i> 266:7423-7431, The American Society for Biochemistry and Molecular Biology, Inc. (1991)				
EXAMINER <i>N</i>					DATE CONSIDERED <i>7/24h</i>		

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	AL						Yes No
	AM						Yes No
	AN						Yes No
	AO						Yes No
	AP						Yes No
OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
<i>N</i>	AR	4	DeStefano, J.J., et al., "Characterization of an RNase H deficient mutant of human immunodeficiency virus-1 reverse transcriptase having an aspartate to asparagine change at position 498," <i>Biochim. Biophys. Acta</i> 1219:380-388, Elsevier Science B.V. (1994)				
<i>V</i>	AS	4	Ding, J., et al., "Structure and Functional Implications of the Polymerase Active Site Region in a Complex of HIV-1 RT with a Double-stranded DNA Template-primer and an Antibody Fab Fragment at 2.8 Å Resolution," <i>J. Mol. Biol.</i> 284:1095-1111, Academic Press, Inc. (1998)				
<i>C</i>	AT	4	Georgiadis, M.M., et al., "Mechanistic implications from the structure of a catalytic fragment of Moloney murine leukemia virus reverse transcriptase," <i>Structure</i> 3:879-892, Current Biology Ltd. (1995)				
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FORM PTO-1449		ATTY. DOCKET NO. 0942.5040001/RWE/MTT	APPLICATION NO. 09/845, 157
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U. S. PATENT DOCUMENTS							
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AO							Yes No
AP							Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
<i>✓</i>	AR	5	Gerard, G.F., et al., "Poly(2'-O-methylcytidylate) Oligodeoxyguanylate as a Template for the Ribonucleic Acid Directed Deoxyribonucleic Acid Polymerase in Ribonucleic Acid Tumor Virus Particles and a Specific Probe for the Ribonucleic Acid Directed Enzyme in Transformed Murine Cells," Biochem. 13:1632-1641, The American Chemical Society (1974)				
<i>✓</i>	AS	5	Gerard, G.F., and D'Alessio, J.M., "Reverse Transcriptase (EC 2.7.7.49). The Use of Cloned Moloney Murine Leukemia Virus Reverse Transcriptase to Synthesize DNA from RNA," in <i>Methods in Molecular Biology</i> , Volume 16: <i>Enzymes of Molecular Biology</i> , Burrell, M.M., ed., Humana Press, Totowa, NJ, pp.73-93 (1993)				
<i>✓</i>	AT	5	Gerard, G.F., et al., "Reverse Transcriptase. The Use of Cloned Moloney Murine Leukemia Virus Reverse Transcriptase to Synthesize DNA from RNA," <i>Mol. Biotechnol.</i> 8:61-77, Humana Press (1997)				
EXAMINER				DATE CONSIDERED <i>9/20/12</i>			

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FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT		ATTY. DOCKET NO. 0942.5040001/RWE/MTT	APPLICATION NO. 09/845,157
		APPLICANT Smith et al.	
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	AP						Yes No
OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
<i>2</i>	AR	6	<i>1</i>	Harrison, G.P., et al., "Pausing of reverse transcriptase on retroviral RNA templates is influenced by secondary structures both 5' and 3' of the catalytic site," Nucl. Acids Res. 26:3433-3442, Oxford University Press (1998)			
<i>2</i>	AS	6	<i>1</i>	Houts, G.E., et al., "Reverse Transcriptase from Avian Myeloblastosis Virus," J. Virol. 29:517-522, American Society for Microbiology (1979)			
<i>2</i>	AT	6	<i>1</i>	Huang, H., et al., "Structure of a Covalently Trapped Catalytic Complex of HIV-1 Reverse Transcriptase: Implications for Drug Resistance," Science 282:1669-1675, American Association for the Advancement of Science (1998)			
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U. S. PATENT DOCUMENTS

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AN						Yes No
AO						Yes No
AP						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

<i>M</i>	AR	1	Jacobo-Molina, A., et al., "Crystal structure of human immunodeficiency virus type 1 reverse transcriptase complexed with double-stranded DNA at 3.0 Å resolution shows bent DNA," Proc. Natl. Acad. Sci. (USA) 90:6320-6324, National Academy of Sciences of the USA (1993)
<i>M</i>	AS	1	Kohlstaedt, L.A., et al., "Crystal Structure at 3.5 Å Resolution of HIV-1 Reverse Transcriptase Complexed with an Inhibitor," Science 256:1783-1790, American Association for the Advancement of Science (1992)
<i>M</i>	AT	1	Kotewicz, M.L., et al., "Isolation of cloned Moloney murine leukemia virus reverse transcriptase lacking ribonuclease H activity," Nucl. Acids Res. 16:265-277, IRL Press Ltd. (1988)

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FORM PTO-1449 FIRST SUPPLEMENTAL INFORMATION DISCLOSURE <u>STATEMENT</u>		ATTY. DOCKET NO. 0942.5040001/RWE/MTT	
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	AP						Yes No
OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
<i>✓</i>	AR	8	Kneller, D.G., et al., "Improvements in Protein Secondary Structure Prediction by An Enhanced Neural Network," <i>J. Mol. Biol.</i> 214:171-182, Academic Press Ltd. (1990)				
<i>✓</i>	AS	8	Krug, M.S., and Berger, S.L., "[33] First-Strand cDNA Synthesis Primed with Oligo(dT)," <i>Meth. Enzymol.</i> 152:316-325, Academic Press, Inc. (1987)				
<i>✓</i>	AT	8	Kumar, S., and Nussinov, R., "How do thermophilic proteins deal with heat?" <i>Cell. Mol. Life Sci.</i> 58:1216-1233, Birkhauser Verlag (August 2001)				
EXAMINER					DATE CONSIDERED <i>7/10/02</i>		
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.							

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PATENT & TRADEMARK OFFICE WASH. D.C. 20591 1449	ATTY. DOCKET NO. 0942.5040001/RWE/MTT	APPLICATION NO. 09/845,157
	APPLICANT Smith et al.	
	FILING DATE May 1, 2001	GROUP 1623

FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

U.S. PATENT DOCUMENTS							
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	AL						Yes No
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	AP						Yes No

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<i>AR</i>	2	Kunkel, T.A., et al., "[19] Rapid and Efficient Site-Specific Mutagenesis without Phenotypic Selection," <i>Meth. Enzymol.</i> 154:367-383, Academic Press, Inc. (1987)
<i>AS</i>	2	Kunkel, T.A., et al., "[6] Efficient Site-Directed Mutagenesis Using Uracil-Containing DNA," <i>Meth. Enzymol.</i> 204:125-139, Academic Press, Inc. (1991)
<i>AT</i>	2	Le Grice, S.F.J., "9. Human Immunodeficiency Virus Reverse Transcriptase," in <i>Reverse Transcriptase</i> , Skalka, A.M. and Goff, S.P., eds., Cold Spring Harbor Laboratory Press, Plainview, NY, pp. 163-191 (1993)

EXAMINER	<i>✓</i>	DATE CONSIDERED
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<i>z</i>	AR	<u>10</u>	Lehmann, M., and Wyss, M., "Engineering proteins for thermostability: the use of sequence alignments versus rational design and directed evolution," <i>Curr. Opin. Biotechnol.</i> 12:371-375, Elsevier Science Ltd. (August 2001)				
<i>M</i>	AS	<u>10</u>	Leung, D.W., et al., "A Method for Random Mutagenesis of a Defined DNA Segment Using a Modified Polymerase Chain Reaction," <i>Technique</i> 1:11-15, W.B. Saunders Co. (1989)				
<i>z</i>	AT	<u>10</u>	McDonell, M.W., et al., "Analysis of Restriction Fragments of T7 DNA and Determination of Molecular Weights by Electrophoresis in Neutral and Alkaline Gels," <i>J. Mol. Biol.</i> 110:119-146, Academic Press, Inc. (1977)				

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OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
<i>M</i>	AR	<u>11</u>	Mölling, K., et al., "Association of Viral Reverse Transcriptase with an Enzyme degrading the RNA Moiety of RNA-DNA Hybrids," <i>Nature New Biology</i> 234:240-243, Macmillan Journals Ltd. (1971)				
<i>N</i>	AS	<u>11</u>	Myers, T.W., and Gelfand, D.H., "Reverse Transcription and DNA Amplification by a <i>Thermus thermophilus</i> DNA Polymerase," <i>Biochem</i> 30:7661-7666, The American Chemical Society (1991)				
<i>N</i>	AT	<u>11</u>	Polesky, A.H., et al., "Identification of Residues Critical for the Polymerase Activity of the Klenow Fragment of DNA Polymerase I from <i>Escherichia coli</i> ," <i>J. Biol. Chem.</i> 265:14579-14591, The American Society for Biochemistry and Molecular Biology, Inc. (1990)				
EXAMINER					DATE CONSIDERED <i>6/26/02</i>		

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<i>✓</i>	AR	<u>12</u>	Prasad, V.R., "8. Genetic Analysis of Retroviral Reverse Transcriptase Structure and Function," in Reverse Transcriptase, Skalka, A.M. and Goff, S.P., eds., Cold Spring Harbor Laboratory Press, Plainview, NY, pp. 135-162 (1993)				
<i>✓</i>	AS	<u>12</u>	Rost, B., "[31] PhD: Predicting One-Dimensional Protein Structure by Profile-Based Neural Networks," Meth. Enzymol. 266:525-539, Academic Press, Inc. (1996)				
<i>✓</i>	AT	<u>12</u>	Shinnick, T.M., et al., "Nucleotide sequence of Moloney murine leukaemia virus," Nature 293:543-548, Macmillan Journals Ltd. (1981)				

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OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
<i>R</i>	AR	<u>13</u>	Skalka, A.M., "10. Endonuclease Activity Associated with Reverse Transcriptase of Avian Sarcoma-Leukosis Viruses," in <i>Reverse Transcriptase</i> , Skalka, A.M. and Goff, S.P., eds., Cold Spring Harbor Laboratory Press, Plainview, NY, pp. 193-204 (1993)				
<i>R</i>	AS	<u>13</u>	Stemmer, W.P.C., "Rapid evolution of a protein <i>in vitro</i> by DNA shuffling," <i>Nature</i> 370:389-391, Macmillan Journals Ltd. (1994)				
<i>R</i>	AT	<u>13</u>	Strauss, H.S., et al., "Variables affecting the selectivity and efficiency of retention of DNA fragments by <i>E. coli</i> RNA polymerase in the nitrocellulose-filter-binding assay," <i>Gene</i> 13:75-87, Elsevier/North-Holland Biomedical Press (1981)				

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OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
<i>2</i>	AR	<u>14</u>	Tosh, C., et al., "One-Tube and One-Buffer System of RT-PCR Amplification of 1D Gene of Foot-and-Mouth Disease Virus Field Isolates," Acta Virol. 41:153-155, Slovak Academic Press (1997)				
<i>2</i>	AS	<u>14</u>	Verma, I., et al., "Studies on Reverse Transcriptase of RNA Tumor Viruses. III. Properties of Purified Moloney Murine Leukemia Virus DNA Polymerase and Associated RNase H," J. Virol. 15:843-854, American Society for Microbiology (1975)				
<i>✓</i>	AT	<u>14</u>	Wells, J.A., "Additivity of Mutational Effects in Proteins," Biochem. 29:8509-8517, The American Chemical Society (1990)				

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FORM PTO-1449 <u>FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT</u>	ATTY. DOCKET NO. 0942.5040001/RWE/MTT	APPLICATION NO 09/3416
	APPLICANT Smith et al.	TECH CENTER 1600/2900
	FILING DATE May 1, 2001	GROUP 1623

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AN							Yes No
AO							Yes No
AP							Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
<i>W</i>	AR	<u>15</u>	Wu, W., et al., "Human Immunodeficiency Virus Type 1 Nucleocapsid Protein Reduces Reverse Transcriptase Pausing at a Secondary Structure near the Murine Leukemia Virus Polypurine Tract," <i>J. Virol.</i> 70:7132-7142, American Society for Microbiology (1996)				
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